

Amendments to and Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (previously presented) A video encoder for encoding video signal data for an image block and a plurality of reference picture indices, the encoder comprising a reference picture weighting factor assignor responsive to the relative positioning between the image block and first and second reference pictures indicated by the plurality of reference picture indices, the reference picture weighting factor assignor for calculating respective implicit weighting factors for the first and second reference pictures based on respective distances of the image block to the first and second reference pictures.

2. (previously presented) A video encoder as defined in Claim 1 wherein the reference picture weighting factor assignor comprises:
an interpolation portion for interpolating between portions of two reference pictures disposed one before and one after the image block in display order; and
an extrapolation portion for extrapolating from portions of two reference pictures disposed both before or both after the image block in display order.

3. (previously presented) A video encoder as defined in Claim 1, further comprising a reference picture store in signal communication with the reference picture weighting factor assignor for providing a reference picture corresponding to each reference picture index.

4. (previously presented) A video encoder as defined in Claim 1, further comprising a variable length coder in signal communication with the reference picture weighting factor assignor for encoding the first and second reference picture indices.

5. (previously presented) A video encoder as defined in Claim 1, further comprising a motion compensation unit in signal communication with the reference picture

weighting factor assignor for providing motion compensated reference pictures responsive to the reference picture weighting factor assignor.

6. (previously presented) A video encoder as defined in Claim 5, further comprising a multiplier in signal communication with the motion compensation unit and the reference picture weighting factor assignor for applying a weighting factor to a motion compensated reference picture.

7. (previously presented) A video encoder as defined in Claim 6, further comprising prediction means for forming first and second predictors from two different reference pictures.

8. (previously presented) A video encoder as defined in Claim 7 wherein the two different reference pictures are both from the same direction relative to the image block.

9. (previously presented) A method for encoding video signal data for an image block, the method comprising:

receiving a substantially uncompressed image block;

calculating implicit weighting factors for the image block responsive to the relative positioning between the image block and first and second reference pictures indicated by first and second reference picture indices based on respective distances of the image block to the first and second reference pictures;

computing motion vectors for the image block and each of the first and second reference pictures;

motion compensating each of the first and second reference pictures in correspondence with the respective motion vectors;

multiplying each of the motion compensated reference pictures by its calculated implicit weighting factor to form a weighted motion compensated reference picture;

combining each of the weighted motion compensated reference pictures into a combined weighted motion compensated reference picture;

subtracting the combined weighted motion compensated reference picture from the substantially uncompressed image block; and

encoding a signal indicative of the difference between the substantially uncompressed image block and the combined weighted motion compensated reference picture along with the corresponding indices of the first and second reference pictures.

10. (original) A method as defined in Claim 9 wherein calculating an implicit weighting factor comprises at least one of:

interpolating between portions of two reference pictures disposed one before and one after the image block in display order; and

extrapolating from portions of two reference pictures disposed both before or both after the image block in display order.

11. (original) A method as defined in Claim 9 wherein motion compensating each of the retrieved reference pictures comprises determination of motion vectors for the retrieved reference pictures relative to the image block.

12. (original) A method as defined in Claim 9, further comprising:

encoding a picture order count in a slice header field for the image block for use in calculating implicit weighting factors for the image block and the plurality of reference pictures.

13. (original) A method as defined in Claim 9 wherein the relative positioning of the image block and the plurality of reference pictures corresponds to the relative display times of the respective pictures.

14. (previously presented) A method as defined in Claim 9 wherein computing motion vectors comprises:

testing within a search region for every displacement within a pre-determined range of offsets relative to the image block;

calculating at least one of the sum of the absolute difference and the mean squared error of each pixel in the image block with a motion estimated reference picture; and

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selecting the offset with the lowest sum of the absolute difference and mean squared error as the motion vector.